

U.S. Serial No. 09/622,299  
Amendment dated August 22, 2003  
Reply to Office Action Dated August 13, 2003

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-12 (canceled)

13. (currently amended) A method for the production of transition metal, metal alloy, metal oxide or ceramic nanomaterial particles comprising the steps of:

synthesizing nanomaterial particles in solutions of complex liquids ~~from~~ from suitable precursors, which precursors are selected from the group consisting of suitable surfactants, alkoxides, and metal salts, by a suitable chemical reaction under mild conditions, wherein the water in the solution is nonfreezing water; and preparing fine colloids dispersed in various polymer solutions.

14. (previously presented) A method according to claim 13, wherein the nanomaterial particles have a diameter of 1-5 nm.

15. (previously presented) A method according to claim 13, wherein the mild conditions are atmospheric pressure and a temperature range of room temperature to 70°C.

16. (previously presented) A method according to claim 13, wherein the chemical reaction is a hydrolysis process.

17. (previously presented) A method according to claim 13, wherein the chemical reaction is a reduction process.

18. (previously presented) A method according to claim 13, wherein the chemical reaction is an exchange process.

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19. (previously presented) A method according to claim 13, wherein the solution comprises an organized water-organic surfactant.

20. (previously presented) A method according to claim 13, wherein the solution comprises a microemulsion.

21. (previously presented) A method according to claim 13, wherein the solution comprises liquid crystalline media.

22. (previously presented) A method according to claim 13, wherein the solvent is selected from the group consisting of a suitable hydrocarbon, a chlorinated hydrocarbon and ether.

23. (currently amended) A method according to claim 13, wherein the hydrocarbons are selected from the group consisting of octane, decane and dodecane.

24. (original) A method according to claim 22, wherein the chlorinated hydrocarbon is 1, 2-dichloroethane.

25. (original) A method according to claim 22, wherein the ether is ethylether.

26. (previously presented) A method according to claim 13, wherein the surfactants are selected from the group consisting of trioctylmethyl ammonium chloride (allquat 336), dioctyldimethylammonium bromide (DDAB), cetyltrimethylammonium chloride (CTAB); sodium bis-(2-ethyl-hexyl)-sulfosuccinate; and poly-ethoxyethylene-10-oleyl ether.

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27. (currently amended) A method according to claim 13 wherein the metal oxides oxide and metal precursors are selected from the group consisting of tetraethoxy silanes (TEOS); tetramethoxy silane (TMOS); Al, Zr isopropoxides; Fe, Mg and Al chlorides; Al and Mg acetates; Na and K orthosilicates; Zr oxychloride and transition metal salts of Fe, Co, Ni, Cu, Ru, Rh, Pd, Ir and Pt.

28. (canceled)

29. (original) A method according to claim 17, wherein the reducing agent is selected from the group consisting of sodium formate; hydrogen; and alcohol.

30. (previously presented) A method according to claim 29, wherein the alcohol is selected from the group consisting of methanol, ethanol, and isopropylalcohol.